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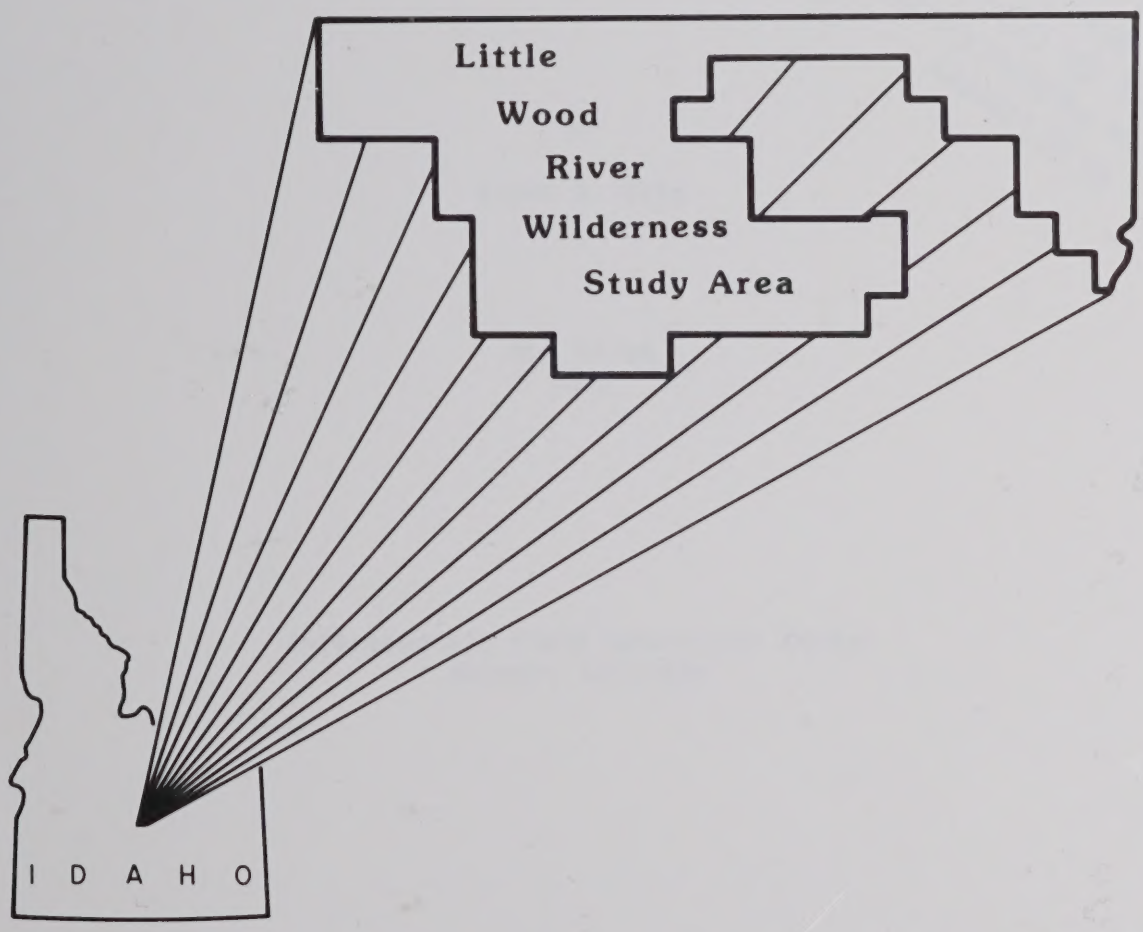
Mineral Investigation of the Little Wood River Wilderness Study Area (ID-053-004), Blaine County, Idaho



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BUREAU OF MINES
UNITED STATES DEPARTMENT OF THE INTERIOR

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MINERAL INVESTIGATION OF THE LITTLE WOOD RIVER WILDERNESS STUDY AREA (ID-053-004), BLAINE COUNTY, IDAHO

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by

Diann D. Gese

MLA 14-88
1988

Intermountain Field Operations Center
Denver, Colorado

UNITED STATES DEPARTMENT OF THE INTERIOR
Donald P. Hodel, Secretary

BUREAU OF MINES
David S. Brown, Acting Director

PREFACE

The Federal Land Policy and Management Act of 1976 (Public Law 94-579) requires the U.S. Geological Survey and the U.S. Bureau of Mines to conduct mineral surveys on certain areas to determine the mineral values, if any, that may be present. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a mineral survey of the Little Wood River Wilderness Study Area (ID-053-004), Blaine County, Idaho.

This open-file report summarizes the results of a Bureau of Mines wilderness study. This report is preliminary and has not been edited or reviewed for conformity with the Bureau of Mines editorial standards. This study was conducted by personnel from the Branch of Mineral Land Assessment (MLA), Intermountain Field Operations Center, P.O. Box 25086, Denver Federal Center, Denver, CO 80225.

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UNIT OF MEASURE ABBREVIATIONS IN THIS REPORT

ft	foot
mi	mile
oz/ton	ounce per short ton
ppm	part per million

MINERAL INVESTIGATION OF THE LITTLE WOOD RIVER WILDERNESS STUDY AREA (ID-053-004), BLAINE COUNTY, IDAHO

by

Diann D. Gese, Bureau of Mines

SUMMARY

In accordance with the Federal Land Policy and Management Act of 1976 (Public Law 94-579) and at the request of the Bureau of Land Management, the Bureau of Mines in August 1987, studied the mineral resources of the Little Wood River Wilderness Study Area, Blaine County, Idaho. The study area consists of 4,385 acres adjacent to the Boulder-Pioneer Wilderness Study Area, Blaine and Custer Counties, Idaho.

No mineral resources were identified within the study area. Shatter and fault zones in the central part of the study area contain minor silver and anomalously high amounts of arsenic, barium, and zinc. Petroleum potential within the WSA has been previously rated low to zero. Sand and gravel occurs along the Little Wood River in the study area; however, larger deposits of better quality can be found much closer to local markets.

INTRODUCTION

In August 1987, the Bureau of Mines, in cooperation with the U.S. Geological Survey (USGS), conducted a mineral investigation of the Little Wood River Wilderness Study Area (WSA) in south-central Idaho, on lands administered by the Bureau of Land Management (BLM), Shoshone District Office, Shoshone, Idaho. The Bureau surveys and studies mines, prospects, and mineralized areas to appraise reserves and identified resources. The USGS studies and assesses the potential for undiscovered mineral resources based on regional geological, geochemical, and geophysical surveys. This report

presents the results of the Bureau's study which was completed prior to the USGS assessment; the USGS will publish the results of their studies. A joint report, to be published by the USGS, will integrate and summarize the results of both surveys.

Previous investigations

The general geology of the WSA is included in Umpleby and others (1930) "Geology and ore deposits of the Wood River Region, Idaho." More recently, the geology of the study area has been mapped by Rember and Bennett (1979a, b) and Dover (1981). The geology of the eastern part of the WSA and the Muldoon mining district were mapped by Nelson and Ross (1969) as part of the "Geologic map of the Mackay Quadrangle, South-Central Idaho." The Muldoon (Little Wood River) mining district has been described in detail by Finch (1917) and Anderson and Wagner (1946). The WSA was studied by the U.S. Geological Survey and the U.S. Bureau of Mines (1981) as a part of the Boulder-Pioneer Wilderness Study Area.

Methods of investigation

Prior to the field investigation, pertinent published and unpublished literature was reviewed. Files at the BLM State Office in Boise, Idaho, were checked for patented and unpatented mining claim locations and oil and gas leases and lease applications. Persons having knowledge of mineral occurrences and mining activities within and near the study area were contacted.

Two Bureau geologists spent five days in the field and collected 28 rock chip samples. All samples were analyzed by inductively coupled plasma atomic emission spectroscopy for 33 elements at Chemex Labs Inc., Sparks, Nevada. Complete analytical results for all samples are available for public inspection

at the Bureau of Mines, Intermountain Field Operations Center, Building 20, Denver Federal Center, Denver, CO.

Geographic and geologic setting

The Little Wood River WSA comprises 4,385 acres in northeastern Blaine County, Idaho. The WSA is bounded on the north by the Boulder-Pioneer WSA. The study area is approximately 20 mi east of Hailey, Idaho, and 32 mi southeast of Ketchum, Idaho (fig. 1). Access is by improved and unimproved dirt roads from State Highway 75. Hiking trails provide access within the study area.

The WSA is on the southern flank of the Pioneer Mountains within the Northern Rocky Mountain physiographic province and just north of the Snake River Plain. Topographically, terrain in the WSA is characterized by steeply rising slopes from the south-flowing Little Wood River. Elevations range from 5,600 ft where the Little Wood River flows out of the study area to 7,879 ft in the eastern part of the WSA.

The WSA is part of the Sevier orogenic belt of the Cordilleran fold-thrust belt, an area of intense middle Paleozoic- and Mesozoic-age thrusting and folding. Bedrock in the area consists of two Paleozoic allochthonous units, the Milligan and Wood River Formations. The Devonian-age Milligan Formation crops out in the northwest corner of the WSA and consists predominantly of dark-gray phyllitic argillite with interbeds of quartzite, dolomitic siltstone, and limestone. This formation is in thrust-fault contact with the overlying Permian- and Pennsylvanian-age Wood River Formation which underlies about half of the WSA and consists of siliceous sandstone, conglomerate, and sandy limestone. Eocene-age Challis Volcanics, consisting predominantly of dark porphyritic and tuffaceous rocks of intermediate

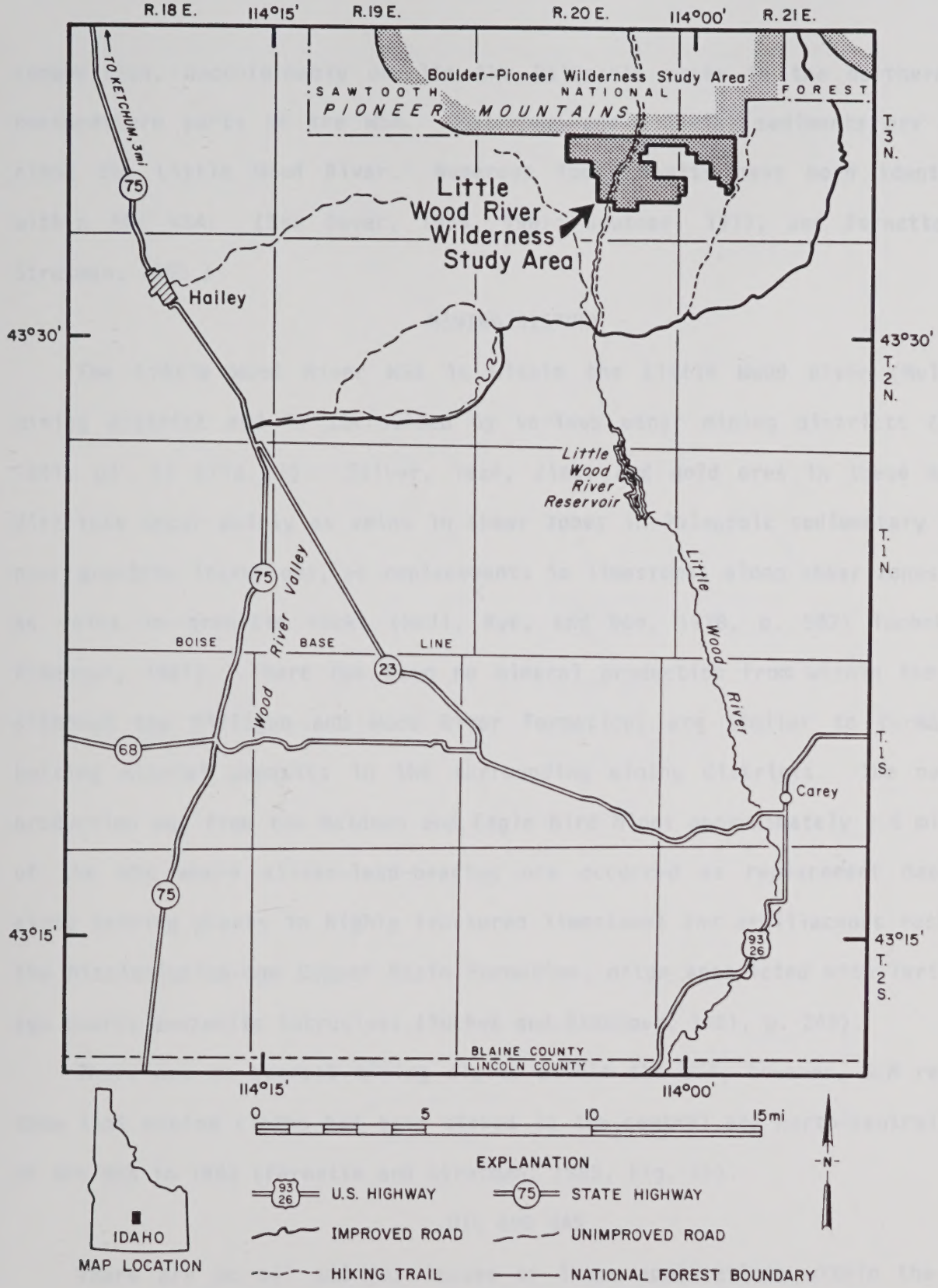

Figure 1.--Index map of the Little Wood River Wilderness Study Area, Blaine County, Idaho.

composition, unconformably overlie the Paleozoic rocks in the northern and northeastern parts of the WSA. Quaternary-age alluvial sediments are found along the Little Wood River. Numerous local faults have been identified within the WSA. (See Dover, 1969, 1981; Beutner, 1977; and Fernette and Stratman, 1983.)

MINING HISTORY

The Little Wood River WSA is within the Little Wood River (Muldoon) mining district and is surrounded by various other mining districts (Ross, 1941, pl. 1) (fig. 2). Silver, lead, zinc, and gold ores in these mining districts occur mainly as veins in shear zones in Paleozoic sedimentary rocks near granitic intrusions, as replacements in limestones along shear zones, and as veins in granitic rocks (Hall, Rye, and Doe, 1978, p. 582; Tuchek and Ridenour, 1981). There has been no mineral production from within the WSA, although the Milligan and Wood River Formations are similar to formations hosting mineral deposits in the surrounding mining districts. The nearest production was from the Muldoon and Eagle Bird Mines approximately 2.5 mi east of the WSA where silver-lead-bearing ore occurred as replacement deposits along bedding planes in highly fractured limestones and argillaceous rocks of the Mississippian-age Copper Basin Formation, often associated with Tertiary-age quartz monzonite intrusives (Tuchek and Ridenour, 1981, p. 249).

There are no current mining claims within the WSA; however, BLM records show that mining claims had been staked in the central and north-central part of the WSA in 1982 (Fernette and Stratman, 1983, fig. 15).

OIL AND GAS

There are no oil and gas leases or lease applications within the WSA. Based on the presence, type, and maturation of possible petroleum source rocks,

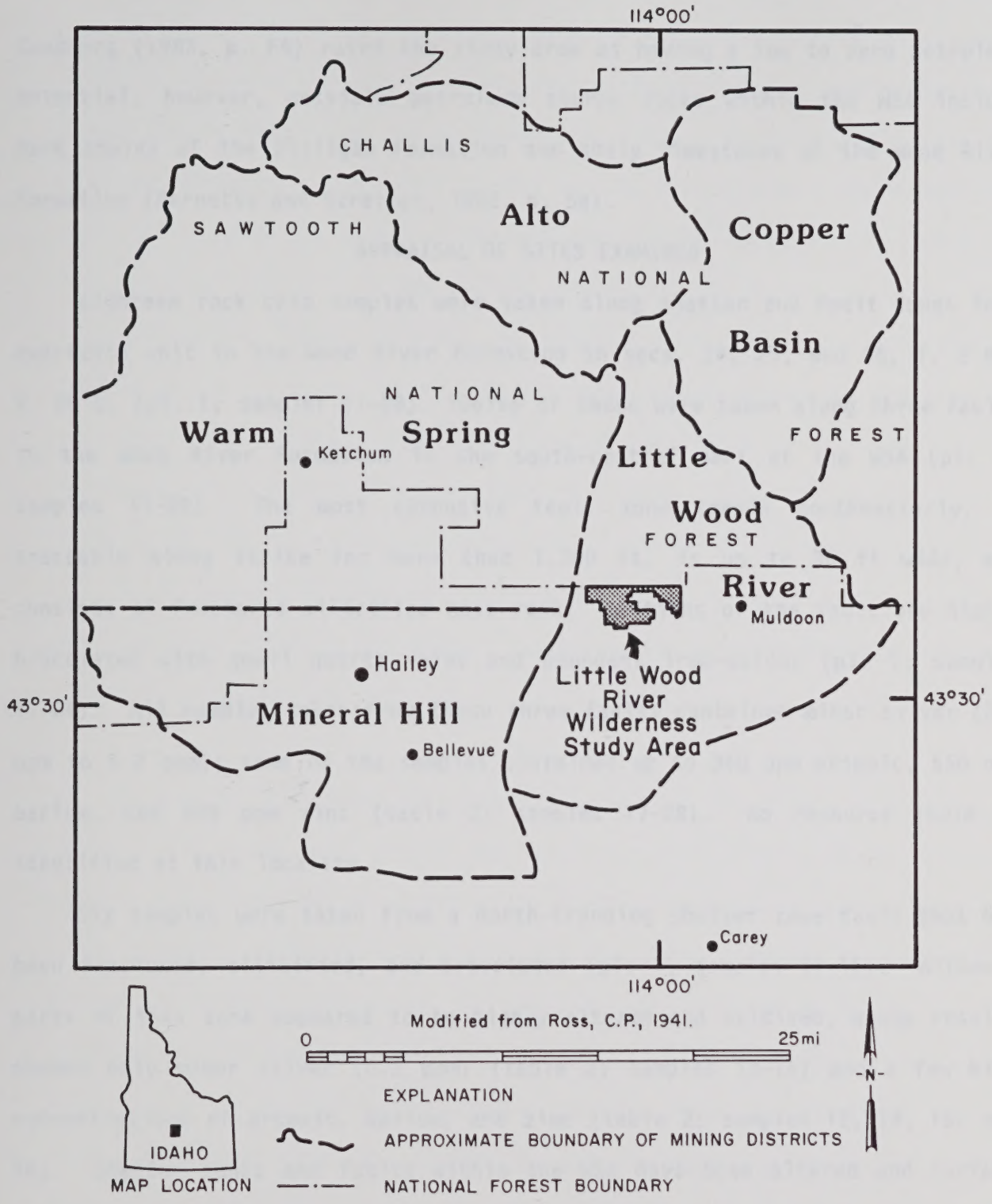

Figure 2.--Map showing mining districts in and near the Little Wood River Wilderness Study Area, Blaine County, Idaho.

Sandberg (1983, p. F4) rated the study area as having a low to zero petroleum potential; however, possible petroleum source rocks within the WSA include dark shales of the Milligan Formation and shaly limestones of the Wood River Formation (Fernette and Stratman, 1982, p. 59).

APPRAISAL OF SITES EXAMINED

Eighteen rock chip samples were taken along shatter and fault zones in a quartzite unit in the Wood River Formation in secs. 24, 25, and 36, T. 3 N., R. 20 E. (pl. 1; samples 11-28). Twelve of these were taken along three faults in the Wood River Formation in the south-central part of the WSA (pl. 1; samples 17-28). The most extensive fault zone trends northeasterly, is traceable along strike for more than 1,200 ft, is up to 30 ft wide, and consists of fractured silicified host rock. Sections of the fault are highly brecciated with small quartz veins and abundant iron-oxides (pl. 1; samples 17-24). All samples taken from these three faults contained minor silver (0.2 ppm to 5.2 ppm); some of the samples contained up to 340 ppm arsenic, 550 ppm barium, and 999 ppm zinc (table 2; samples 17-28). No resource could be identified at this locality.

Six samples were taken from a north-trending shatter zone fault that has been fractured, silicified, and brecciated (pl. 1; samples 11-16). Although parts of this zone appeared to be highly altered and oxidized, assay results showed only minor silver (0.2 ppm) (table 2; samples 13-16) and a few high concentrations of arsenic, barium, and zinc (table 2; samples 12, 13, 15, and 16). Shatter zones and faults within the WSA have been altered and surface sampling indicates that sections are mineralized; however, additional detailed work would be required to determine the extent of mineralization along these shatter zones and faults and if resources are present at depth.

The Porcupine Creek prospect, approximately 1.5 mi northwest of the WSA, consists of two adits, one of which was caved. The upper, accessible adit was driven approximately 130 ft northwesterly along a quartz-calcite vein in the Milligan Formation. The vein is cut off by a 5-ft-wide, northeast-trending fault 60 ft from the portal. The adit was flooded at 65 ft; its total length was obtained from a 1974 map of the prospect (U.S. Bureau of Mines, Western Field Operations Center, Spokane, WA, mineral property file). Pods and lenses containing pyrite, chalcopyrite, sphalerite, copper carbonates and iron-oxides were found in calcite. Five chip samples were taken in the adit, only one contained more than 0.2 ppm silver (3.6 ppm) (table 1; sample 2). Vein minerals at the Porcupine Creek prospect do not appear to extend into the WSA.

Minor amounts of sand and gravel occur along the Little Wood River in the WSA; however, deposits of better quality occur outside the study area much closer to local markets.

CONCLUSIONS

No mineral resources were identified within the Little Wood River WSA. Shatter and fault zones within and near the central part of the study area contain minor silver and anomalously high amounts of arsenic, barium, and zinc; however, additional detailed work would be required to determine the extent of mineralization and if resources are present at depth. An adit approximately 1.5 mi northwest of the area contained minor silver, copper, lead, and zinc, but the mineralization did not appear to extend into the study area. Petroleum potential within the WSA has been previously rated low to zero. Sand and gravel occurs along the Little Wood River in the WSA; however, larger deposits of better quality occur outside the WSA much closer to local markets.

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Table 1.--Analytical data for samples 1-6 from the Porcupine Creek area, Little Wood River Wilderness Study Area, Blaine County, Idaho.

[Ag, silver; Cu, copper; Pb, lead; Zn, zinc; ppm, part per million; xxx, not applicable; >, greater than; all samples assayed for gold, but none above detection limit of 0.002 oz/ton.]

Sample			Assay data				
No.	Type	Width (ft)	Ag	Cu	Pb	Zn	Remarks
			ppm				
1	chip	3.5	0.2	1,010	8	4,880	Small veins of pyrite, chalcopyrite, and sphalerite in calcite.
2	do.	1.5	3.6	>10,000	14	>10,000	Pod of pyrite, chalcopyrite, sphalerite, copper carbonates, iron oxides in calcite.
3	do.	1.3	.2	59	30	202	Fault containing gouge, iron oxides, calcite, and quartz pods.
4	do.	2.0	.2	27	16	123	Fault; brecciated, quartz pods, calcite, and iron oxides.
5	do.	1.5	.2	4,760	4	252	Quartz vein in fault; highly altered, pyrite, chalcopyrite, and copper carbonates.
6	select	xxx	.2	831	46	974	Quartz-calcite vein; fractured, pod of pyrite, chalcopyrite, and sphalerite; halo of copper carbonates around sulfide pod.

Table 2.--Analytical data for samples 7-28 in and near the Little Wood River Wilderness Study Area, Blaine County, Idaho.

[Ag, silver; As, arsenic; Ba, barium; Pb, lead; Zn, zinc; ppm, part per million; xxx, not applicable; <, less than; all samples assayed for gold, but none above detection limit of 0.002 oz/ton.]

Sample			Assay data					
No.	Type	Width (ft)	Ag	As	Ba	Pb	Zn	Remarks
			ppm					
7	select	xxx	0.2	<5	10	6	12	Quartz vein; fractured, minor iron and manganese oxides.
8	do.	xxx	.2	<5	10	26	20	Quartz-calcite vein; fractured, iron oxides.
9	do.	xxx	<.2	<5	10	<2	11	Do.
10	chip	0.4	.4	<5	100	4	46	Quartzite; fractured, iron oxides.
11	select	xxx	<.2	25	20	10	29	Fault zone; fractured and silicified, iron oxides.
12	chip	3.0	<.2	25	50	32	171	Fault zone; silicified, iron oxides.
13	do.	1.5	.2	20	40	14	153	Fault zone; silicified, abundant iron and manganese oxides.
14	select	xxx	.2	20	40	10	41	Composite sample along fault zone; silicified and brecciated, quartz veins, abundant iron oxides.
15	do.	xxx	.2	165	30	18	164	Do.
16	chip	5.0	.2	30	550	26	306	Fault zone; brecciated, abundant iron oxides.
17	select	xxx	1.4	185	30	96	34	Fault zone; silicified, abundant iron oxides.
18	chip	1.8	.8	340	80	66	43	Do.

Table 2.--Analytical data for samples 7-28 in and near the Little Wood River Wilderness Study Area, Blaine County, Idaho--Continued

Sample No.	Sample Type	Sample Width (ft)	Assay data Ag (ppm)	As (ppm)	Ba (ppm)	Pb (ppm)	Zn (ppm)	Remarks
19	chip	2.0	2.0	20	340	16	12	Fault zone; 6-in.-wide breccia zone, silicified, abundant iron oxides.
20	do.	2.5	1.2	185	100	68	93	Fault zone; silicified, parts brecciated, abundant iron oxides.
21	do.	1.0	.4	15	20	10	125	Fault zone; fractured and silicified, small quartz veins, abundant iron oxides.
22	do.	3.0	.6	25	20	26	242	Fault zone; moderately silicified, abundant iron oxides.
23	do.	3.0	.4	40	110	8	16	Fault zone; silicified, fractured, abundant iron oxides.
24	do.	3.5	.6	50	50	54	7	Fault zone; fractured and silicified, abundant iron oxides.
25	select	xxx	.4	140	50	78	999	Composite sample along fault zone; silicified, and oxidized, small quartz veins.
26	do.	xxx	5.2	65	250	138	962	Fault zone; silicified, parts brecciated, abundant iron oxides.
27	chip	5.0	.2	25	20	6	88	Fault zone; highly fractured and brecciated, moderate iron oxides.
28	do.	3.0	.2	15	150	6	100	Fault zone; highly silicified and brecciated, abundant iron oxides, liesegang banding.

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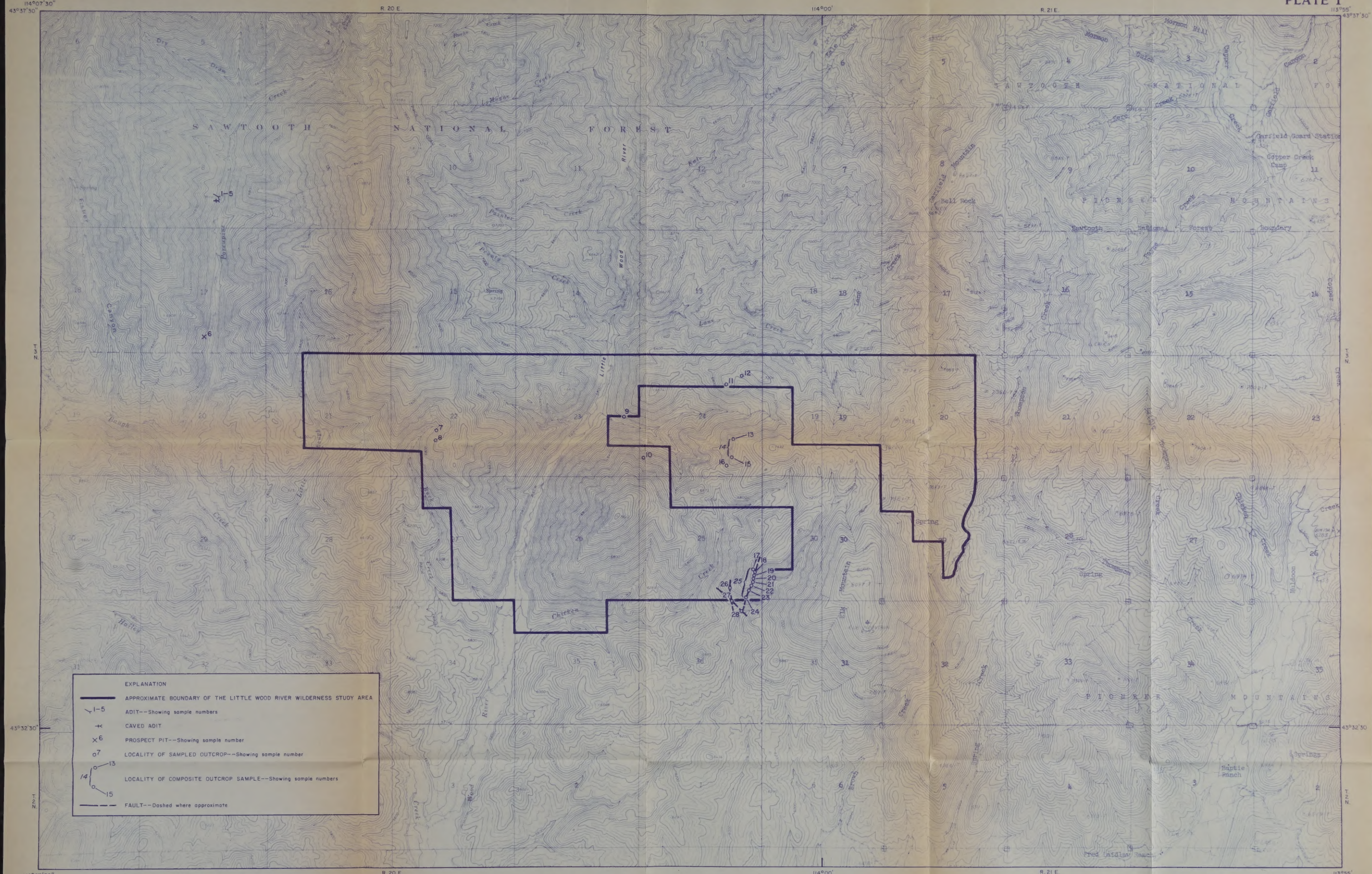
PLATE 1



EXPLANATION

- APPROXIMATE BOUNDARY OF THE LITTLE WOOD RIVER WILDERNESS STUDY AREA
- 1-5 ADIT--Showing sample numbers
- CAVED ADIT
- 6 PROSPECT PIT--Showing sample number
- 7 LOCALITY OF SAMPLED OUTCROP--Showing sample number
- 13, 14, 15 LOCALITY OF COMPOSITE OUTCROP SAMPLE--Showing sample numbers
- FAULT--Dashed where approximate

Base from the U.S. Geological Survey, 1:24,000
Baugh Creek, 1967; and Mackay 3 SW, provisional

MN

SCALE 1:24,000
0 ½ 1 2 mi
CONTOUR INTERVAL 40 ft

IDAHO
MAP LOCATION

Field work completed in 1987 by Diann D. Gese; assisted by John R. McDonnell, Jr.

MINE AND PROSPECT MAP OF THE LITTLE WOOD RIVER WILDERNESS STUDY AREA, BLAINE COUNTY, IDAHO

BY

DIANN D. GESE, U.S. BUREAU OF MINES

1988

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

114°07'30"
43°37'30"

R. 20 E.

T. 3 N.

SAWTOOTH NATIONAL FORE

Dry Draw Creek

Fisher Spring

Porcupine Creek

Canyon

Baugh

Lemoyne Creek

Pack Trail

Painter Creek

Prouty Creek

Spring

Wood River

Little

Trail

OPEN FILE REPORT
MLA 14-88
PLATE 1

114°00'

R. 21 E.

113°55'
43°37'30"

S A W T O O T H N A T I O N A L F O R

P I O N E E R M O U N T A I N S

Sawtooth National Forest Boundary

T. 3 N.

Mormon Hill

Mormon Gulch

Copper Canyon

Garfield Creek

Garfield Guard Station

Copper Creek Camp

Kere Creek

Dale Creek

Trail Creek

Garfield Mountain

Bell Rock

Lane Creek

Thompson Creek

Payne Creek

Copper Creek

EXPLANATION

APPROXIMATE BOUNDARY OF THE LITTLE WOOD RIVER WILDERNESS STUDY AREA

I-5 ADIT--Showing sample numbers

CAVED ADIT

×6 PROSPECT PIT--Showing sample number

o7 LOCALITY OF SAMPLED OUTCROP--Showing sample number

13 / 14 / 15 LOCALITY OF COMPOSITE OUTCROP SAMPLE--Showing sample numbers

FAULT--Dashed where approximate

43°32'30"

T. 2 N.

R. 20 E.

114°07'30"

Base from the U.S. Geological Survey, 1:24,000
Baugh Creek, 1967; and Mackay 3 SW, provisional

MN

0 ½

MINE AND PROSPECT MAP OF THE LITTLE WOOD

DIANN D. GE

Field work completed in 1987 by Diann D. Gese; assisted by John R. McDonnell, Jr.

SCALE 1:24,000

1 2mi

CONTOUR INTERVAL 40ft

MAP LOCATION

RIVER WILDERNESS STUDY AREA, BLAINE COUNTY, IDAHO

BY

SE, U.S. BUREAU OF MINES

1988